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STATISTICAL MEASUREMENTS OF

4-H CLUB WORK

WITH SPECIAL REFERENCE TO 1936

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Extension Studies and Teaching Section

High Lights of This Report

Statistical measure of 4-H club work	Average for 1936 of the		
	United States	Highest six States	Lowest six States
Percentage of -			
Rural boys and girls reached .....	44.4	96.6	22.0
1935 members reenrolled in 1936 .....	61.0	71.0	42.2
1936 members completing their project .....	69.8	87.7	55.0
Enrollment per county extension agent ..	187	323	95

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## STATISTICAL MEASURES AND THEIR VALUE

Although measurements of participation are not valid in evaluating the educational outcomes of 4-H club work or any other educational undertaking, they may be indicators of progress. Schools and colleges record the number who enroll, attend classes, and satisfactorily complete courses and curriculums. Radio stations evaluate time upon the basis of the size of audience reached. Newspapers and magazines price advertising space largely upon the basis of circulation.

The four statistical measures of 4-H club work that are the best indicators of its scope, appeal, and influence are -

1. Percentage of eligible young people reached.
2. Percentage of members who reenroll.
3. Percentage of members who complete their project.
4. Enrollment per county extension agent.

Because the 4-H club programs vary somewhat from State to State, particularly in the matter of what constitutes enrollment and completion, any one of these four measures is not a fair basis for comparison. This difficulty is overcome when the four are considered together, as they are compensating in character.

## PERCENTAGE OF BOYS AND GIRLS REACHED

The percentage of eligible boys and girls who join a 4-H club is a measure of the thoroughness of the work in covering its potential field. Although a few urban youth join 4-H clubs, the maximum potential field is usually considered to be all rural boys and girls, both farm and rural nonfarm (fig. 1).

Based upon the 1930 Census the number of rural boys and girls who annually reach the average 4-H club starting age of 12.2 years is 1,209,000



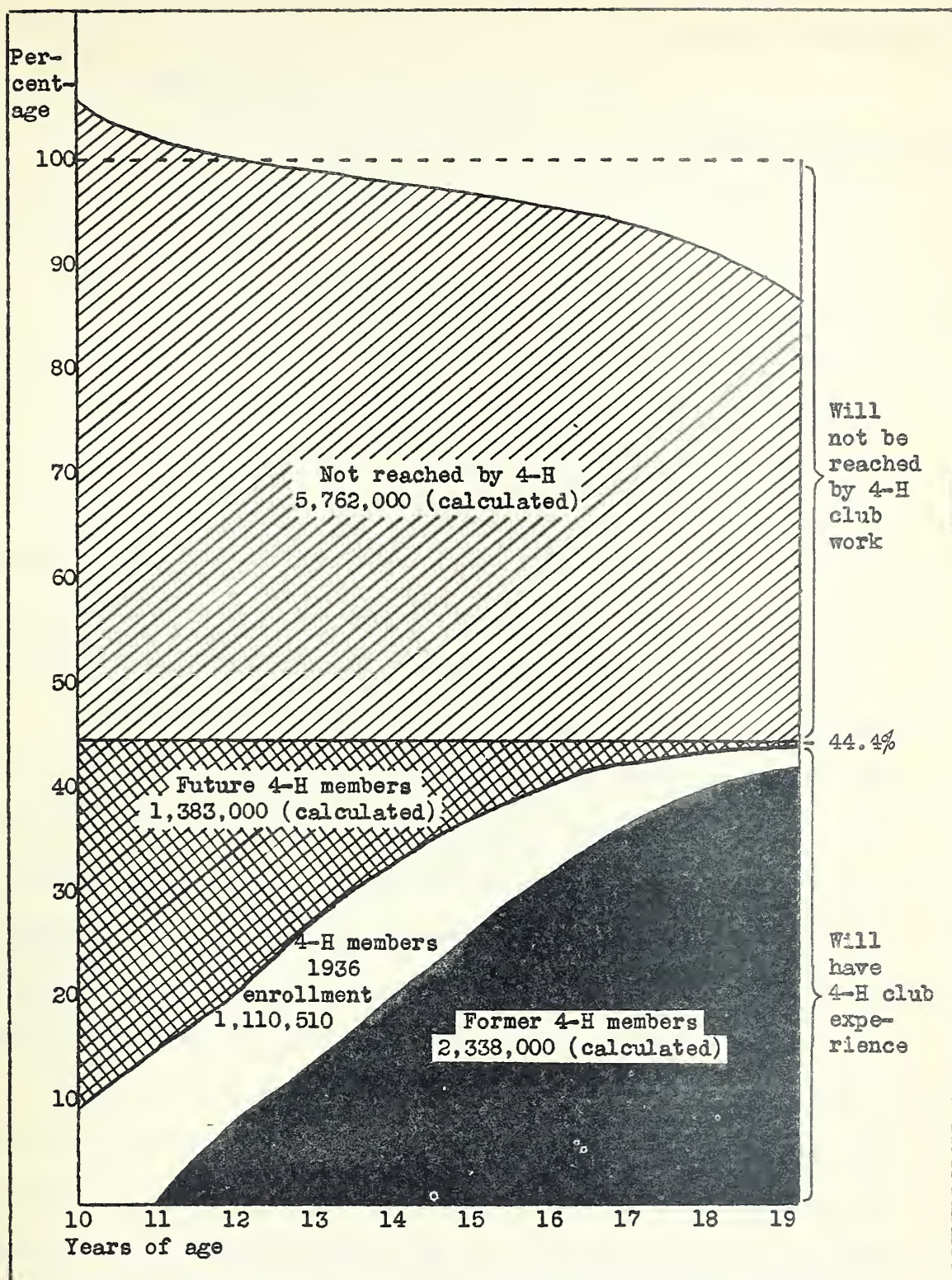


Figure 1 - How 4-H club work reaches rural boys and girls (1936)



(the average of those 11 and 12 years of age). The 536,895 new members enrolled in the 4-H clubs in 1936 are equal to 44.4 percent of those who passed the average starting age during the year.

The number of new members in 1936 was a 23.6 percent increase over the new members enrolled in 1935 and a 35.4 percent increase over the 1930-34 5-year average.

Based upon the number of farm homes and other homes from which 4-H club members were enrolled in 1936 it is estimated that 80.5 percent of the new members in 1936 were farm boys and girls. On this basis, 4-H club work is reaching 58.0 percent of the farm boys and girls. This is determined by dividing 432,200 (80.5 percent of 536,895) by 745,082, the number of farm boys and girls who reached the average 4-H club starting age during the year. In a similar manner it is estimated that 4-H club work is reaching 22.6 percent of the rural nonfarm boys and girls.

Although the 1936 enrollment of 1,145,508 is less than 10 percent of the 12,558,815 rural boys and girls 10 to 20 years of age inclusive, there are many in this group who are former members and many more who will join in the future. Of the 44.4 percent who have been or will be reached by 4-H club work, the average situation is for the boy or girl to join sometime during his twelfth year and to continue until 14 or 15 years of age, the average length of membership being 2.5 years.

Figure 1 is a diagram of the relation of 4-H club membership to rural boys and girls. The 19- and 20-year age groups are omitted from it because the increased migration away from rural communities at that age makes the suppositions upon which the diagram is based less valid than for the 10- to 18-year age group.

One hundred percent represents the 1,209,000 rural boys and girls who annually pass the average 4-H club starting age of 12.2 years. The



536,895 new members enrolled in 4-H clubs in 1936 are equal to 44.4 percent of those who reached the average starting age during the year.

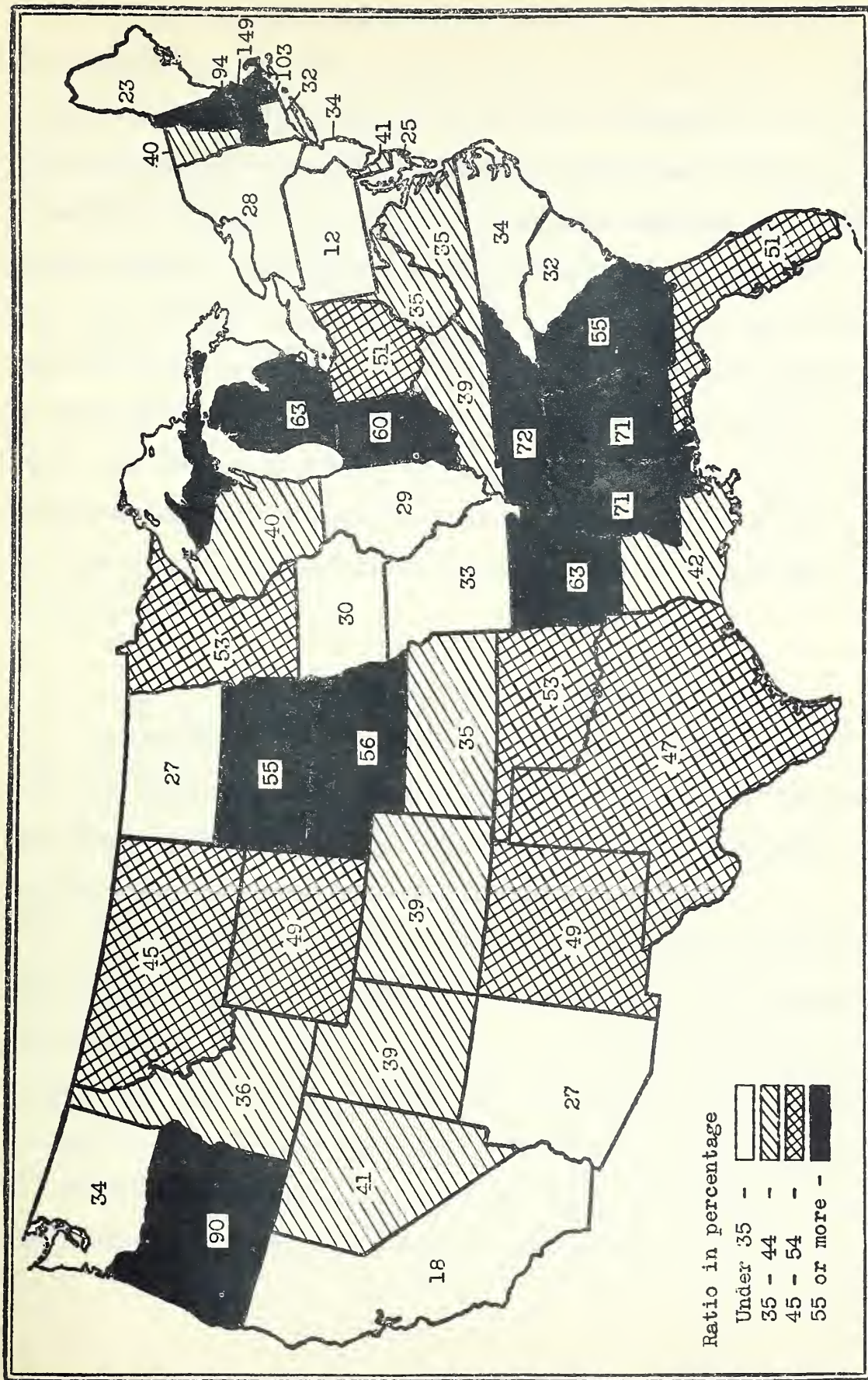
Of the 10,593,000 rural boys and girls 10 to 18 years of age inclusive, throughout the country, 1,110,510 are now 4-H club members. If 4-H club work continues to enroll new members in the same numbers as in 1936, there are 1,383,000 rural boys and girls 10 to 18 years of age who will join before reaching their nineteenth birthday. Likewise, if in the past 4-H club work had enrolled new members at the same rate as in 1936 there would be 2,338,000 former members who have not yet reached their nineteenth birthday. The remaining group of 5,762,000 rural boys and girls will pass through the period between the ages of 10 and 19 years without joining a 4-H club.

The diagram is also useful in determining the approximate membership relation of a particular age group to the 4-H clubs. For example, by reading vertically, we find that 33.9 percent of the 16-year-olds have been in a 4-H club and dropped out. An additional 7.8 percent are current 4-H club members, and 2.7 percent more will join within the next 2 years.

Assuming that the average club member is represented by a horizontal line at 22.2 percent (halfway between 0 and 44.4 percent), it may be ascertained from the diagram that he joined at 12.2 years of age, continued in club work for 2.5 years, and at 14.7 years of age passed from an active to a former 4-H club member.

Data on the percentage of rural boys and girls reached in the various States and counties are determined by dividing the number of new members enrolled during the year by the number of rural boys and girls who annually pass the average starting age (fig. 2).





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Figure 2 - Ratio of first year 4-H club members enrolled in 1936 to total number of rural (farm or nonfarm) boys and girls reaching the average 4-H starting age (average of those reported as 11 years of age and 12 years of age in 1930 Census)



There is a wide variation among the States in the percentage of rural boys and girls that are being reached by 4-H club work. The four States that had a new enrollment of more than 80 percent of the rural boys and girls who passed the average 4-H club starting age in 1936 cannot look forward to any significant increase in 4-H club enrollment by enrolling a larger number of new members annually. In contrast it is possible for the two States that were reaching less than 20 percent of the rural boys and girls to increase their 4-H club enrollment 500 percent by increasing the annual enrollment of new members. On the basis of 1936 enrollment, 17 States are reaching more than 50 percent of the rural boys and girls. Large increases in total enrollment in these States can be achieved only by increasing the average length of time that the 4-H club members continue in the work.

#### PERCENTAGE OF MEMBERS WHO REENROLL

A measure of the effectiveness of 4-H club work is the length of time that the young people continue as members. Members who find the work interesting and helpful will enroll again the following year. This may be expressed by the percentage of members who reenroll.

Percentage of reenrollment for 1936 is calculated by subtracting the first-year members (new members) in 1936 from the total enrollment and dividing by the total enrollment in 1935. Subtracting 536,895 new members from the total of 1,145,508, we have 608,613 members who had belonged to a 4-H club previous to 1936. This number is 61.0 percent of the 997,744 4-H club members in 1935. For boys the percentage of reenrollment for 1936 was 62.5; for girls it was 59.9.



The 1936 percentage of reenrollment was a slight decrease from the 61.4 percent in 1935, but was an increase over the 1930-35 6-year average of 58.4 percent. If the percentage of reenrollment is maintained at 61 percent over a period of years the average length of time that 4-H club members continue in the work would be 2.51 years. To raise the average length of 4-H club membership to 3.0 years, a percentage of reenrollment of 68.6 percent would need to be maintained.

There is considerable variation among the States in percentage of reenrollment (fig. 3). In 1936 there were 10 States in which 65 percent or more of the 1935 members were still members in 1936. In contrast, there were 10 States in which less than 50 percent of the 1935 members continued the work in 1936.

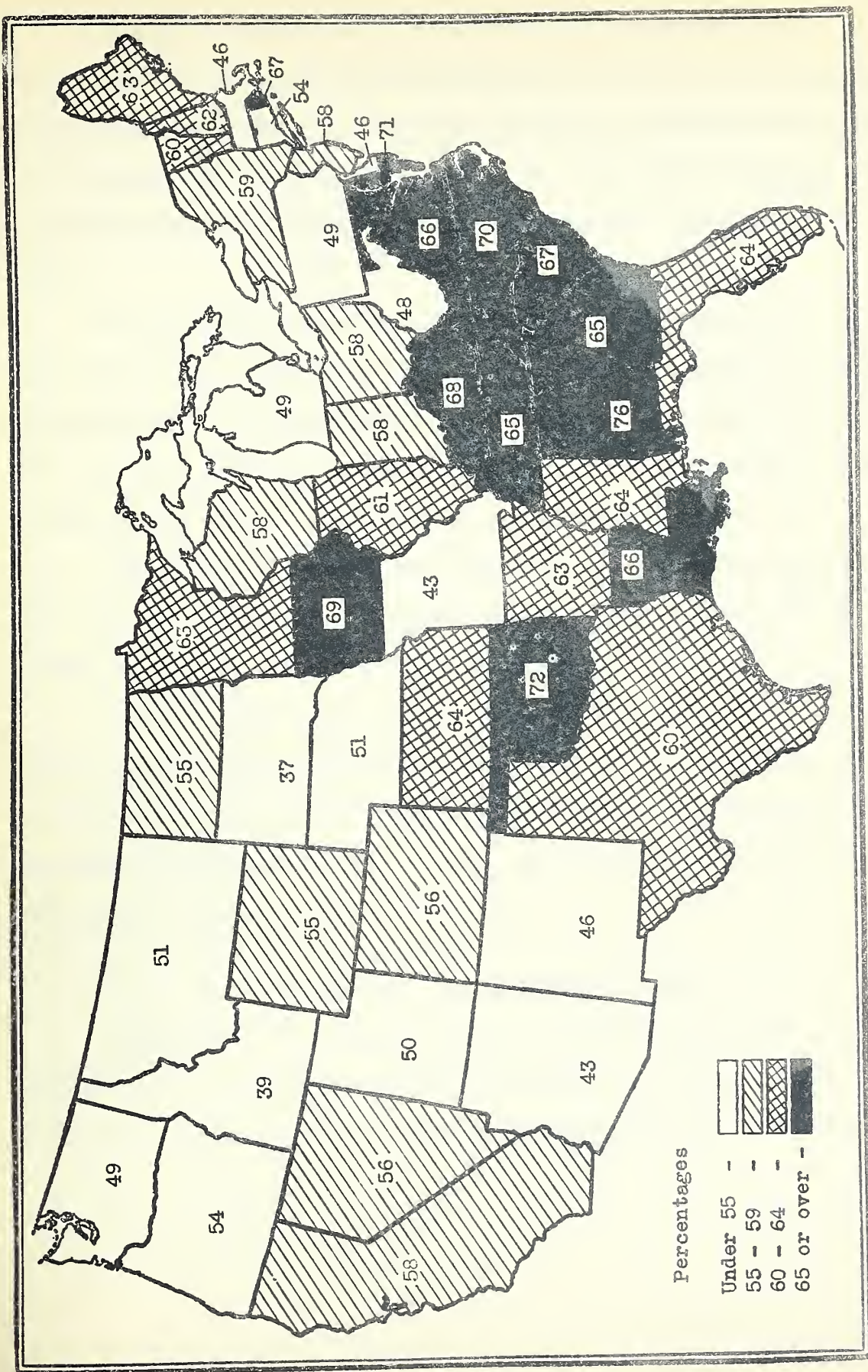
#### PERCENTAGE OF COMPLETIONS

Percentage of completions has been widely used as a measure of 4-H club work. This percentage is determined by dividing the number of members completing by the number who enrolled. These terms are defined as follows: "4-H members enrolled are those boys and girls who actually start the work outlined for the year. 4-H members completing are those boys and girls who satisfactorily finish the work outlined for the year."<sup>1/</sup>

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<sup>1/</sup> Form 285. Combined annual report of county extension workers. U. S. Dept. Agr. Ext. Serv. Revised April 1, 1936.





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Figure 3 - Percentage of 1935 4-H club members who reenrolled in 1936



The "work outlined for the year" and the interpretation of "actually start the work" and "satisfactorily finish the work" vary somewhat from State to State. This variation affects completion and volume of enrollment in a compensating manner. For this reason enrollment per extension agent and percentage of completion should be considered together.

For the country as a whole, the percentage of completion in 1936 was 69.8 percent, which is the lowest since 1930. The highest percentage of completion was 72.5 percent in 1932, and an annual decline of from 0.2 to 1.0 percent has occurred each year since. The 1936 percentage of completion is 0.9 percent less than that for 1935.

The decline in percentage of completion is similar in the case of both boys and girls. In 1936, 67.8 percent of the 4-H club boys and 71.2 percent of the 4-H club girls completed their projects.

There were six States in which 85 percent or more of the 4-H club members completed their projects in 1936 (fig. 4). Contrast these with 10 States where less than 65 percent of the members satisfactorily finished the work outlined for the year. In two of these States less than 50 percent of the members completed their work.

#### ENROLLMENT PER COUNTY EXTENSION AGENT

A measure of the volume of 4-H club work is the relation of membership to the extension budget or personnel. Its purpose is to picture the scope of the work in terms of available paid leadership.

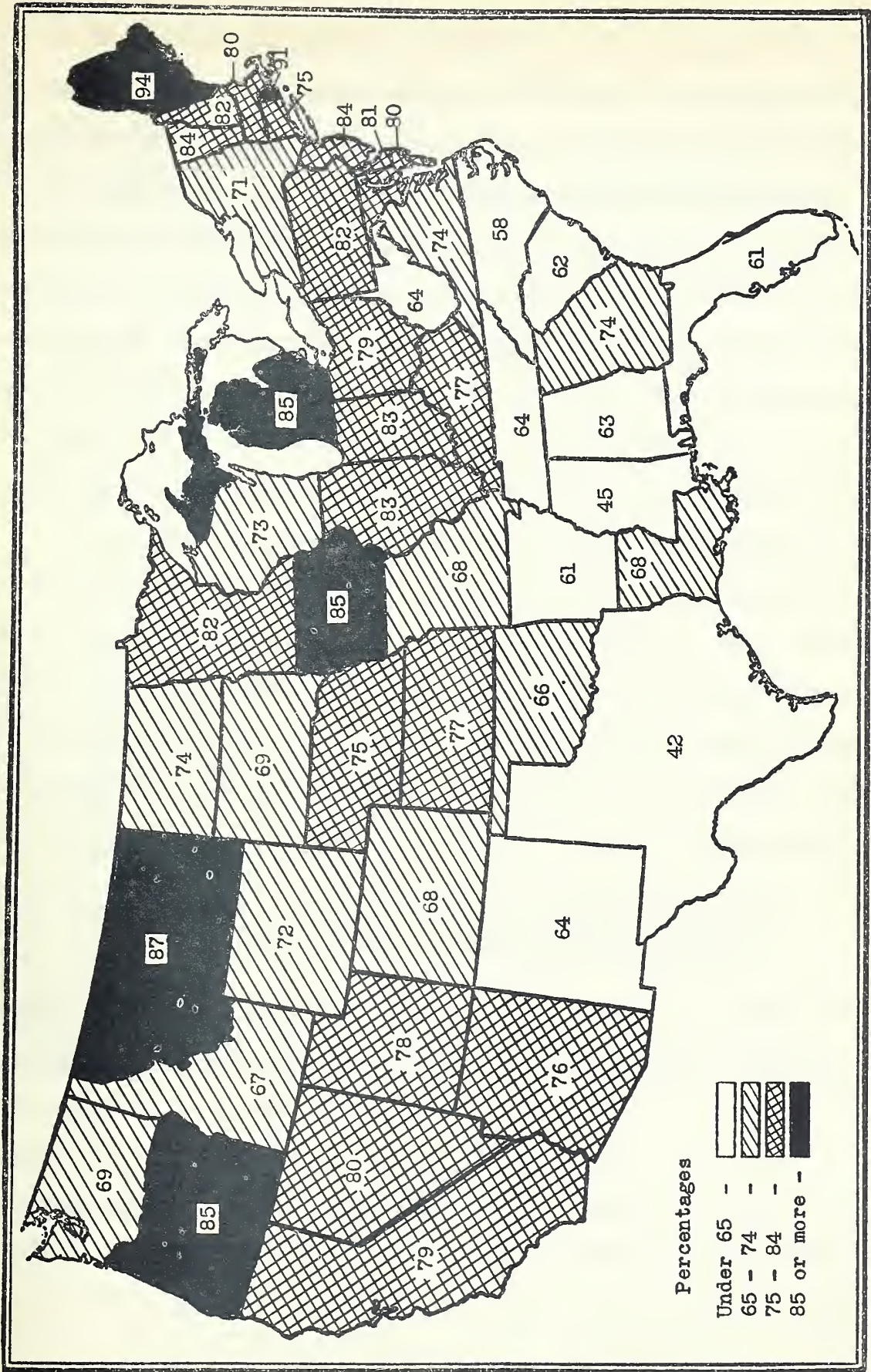


As the county extension worker is the extension employee closest to the local 4-H club program and the person through whom specialists and State leaders usually work, the number of members per county agent is chosen as the most satisfactory unit of comparison. It reflects both budget and total extension personnel, as these are closely correlated with the number of county extension employees.

There were 187 4-H club members enrolled for each full-time county extension agent employed during 1936. This is slightly less than the 1930-35 6-year average of 200 4-H club members for each county extension agent.

Enrollment per county extension agent may be calculated for each State and is a more satisfactory measure of volume than total enrollment per State, because it makes allowance for the differences in the size of the States, the amount of extension funds available, and the number of people on the extension staff. This measure can be used to compare the volume of work done by States that employ agricultural and home demonstration agents who devote part of their time to 4-H club work with States where the agricultural and home demonstration agents devote all their time to adult work and county club agents are employed to give full time to 4-H club work. Whether a portion of each agent's time or the full time of part of the agents is devoted to 4-H club work, the enrollment per county extension agent is a measure of the number of boys and girls reached per unit of extension time or money.





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Figure 4 - Percentage of 4-H club members enrolled who completed their project work, 1936



To calculate the data used in figure 5, it is necessary to know the number of county extension agents in each State. In all except six States the number of county extension agents on Federal appointment on June 30, 1936, was used. In the remaining six States a considerable number of part-time assistant agents either were or were not on Federal appointment on June 30, 1936. In these States the total months of service by county extension agents given in 1936 annual reports were divided by 12 to obtain the number of county extension agents on a yearly basis. The total 4-H club enrollment reported in 1936 was divided by the number of county extension agents to determine the average enrollment per agent.

The States that have a low 4-H club enrollment often justify it on the grounds that larger numbers would mean a lower quality of work. The data for 1936 (table 1) show the opposite to be true. The 18 States with the lowest enrollment per county extension agent have a slightly lower average percentage of completion and a considerably lower average percentage of reenrollment than the States with larger enrollment. This does not necessarily mean that large enrollment is the reason for high

Table 1.--Effect of 4-H enrollment upon percentage of completion and percentage of reenrollment for 1936 by States

Number of 4-H members per extension agent	Average number per agent	Average percentage of completion	Average percentage of reenrollment	Number of States
Less than 140 .	119.8	67.0	56.0	18
140-210 .....	171.0	70.9	63.0	15
More than 210 .	261.1	70.4	62.2	15



completion or for high reenrollment. It does mean that some States have developed large enrollments without any loss in the quality of work being done. It is likely that the States that recognize the value of 4-H club work by getting large enrollments also recognize that a high quality of work is worth while.

#### ADDITIONAL 4-H CLUB DATA

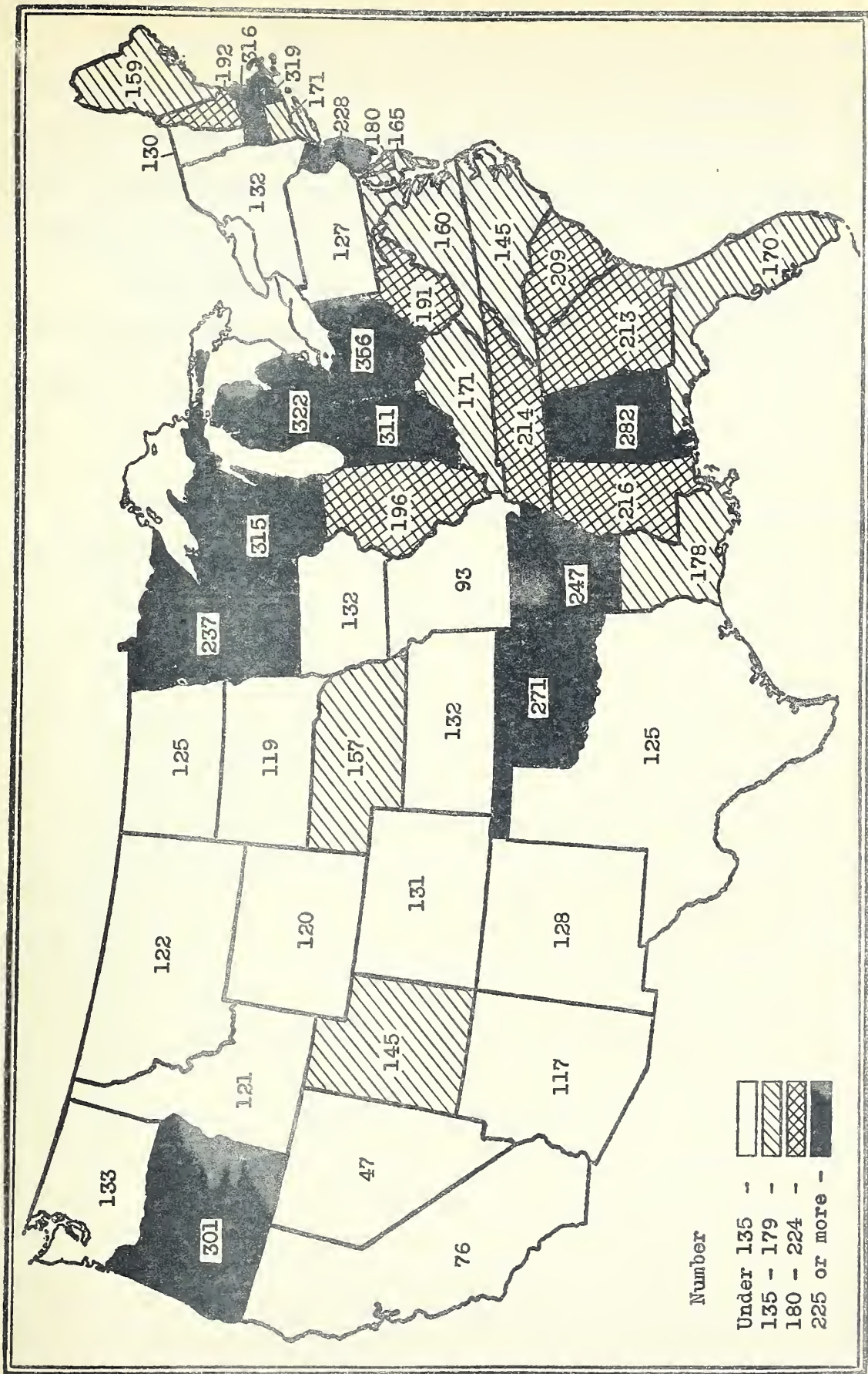
Total 4-H club enrollment reached a new high with 1,145,508 members in 1936. This was an increase of 147,764 members or 14.8 percent over 1935. This increase was directly due to the enlarged extension staff financed through Bankhead-Jones funds. The number of county extension agents also reached a new high with 6,129, an increase of 960 or 18.6 percent over 1935.

The enrollment of 71,038 out-of-school boys and girls was 6.2 percent of the total 4-H club enrollment. This percentage is the lowest of any year since 1931, although the number enrolled in 1936 is the largest since it was first reported in 1930. Enrollment of out-of-school boys and girls increased but did not increase as much as the extension staff or as the enrollment of boys and girls in school.

During 1936, 12.8 percent of all 10- to 15-year-old rural boys and girls were active participants in 4-H club work; 8.8 percent of all 16- to 20-year-old in-school rural boys and girls; and 1.8 percent of all 16- to 20-year-old out-of-school rural boys and girls.

There were 68,341 organized 4-H clubs in 1936. This was 7,621 more than in 1935, and 7,560 more than the number in 1931 which was the highest year previous to 1936. The average number of clubs per county extension agent was 11.2. This is fewer than for any year since 1924.





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Figure 5 - Average number of 4-H club members enrolled per county extension agent, 1936



The average number of members per club was 16.8 and the average number of local leaders 1.7. The total of 46,394 demonstration teams is 0.68 per club, and of 30,372 judging teams is 0.44 per club. The clubs held an average of 4.6 meetings that were conducted by the local leader without an agent in attendance.

The number of local leaders assisting with 4-H club work reached a new high of 115,488 in 1936. They attended an average of 3.7 local-leader training meetings during the year.

#### SUPPLEMENT

Table 2 on pages 17 and 18 presents additional statistical data by States for 1936.



Table 2.--4-H club and other data by States, 1936

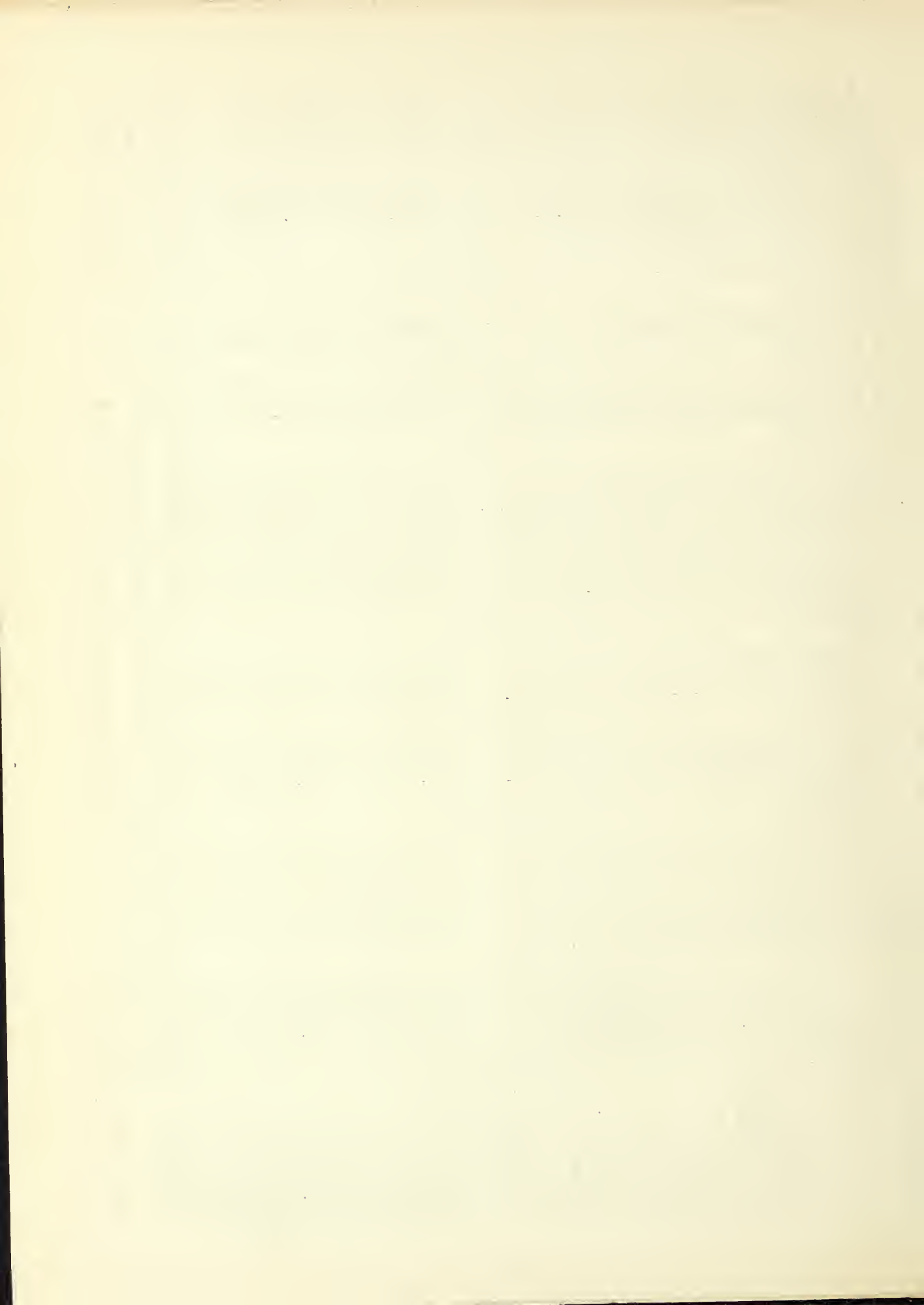
State	Enroll- ment 1935	1935 members reen- rolled in 1936	Per- centage reen- rolled	New members 1936	Total en- rollment 1936	Total com- ple- tions 1936	Per- centage comple- tions 1936	County exten- sion agents <sup>1</sup> 1936	Members per coun- ty exten- sion agent	Rural boys and girls reaching 4-H start- ing age	Per- centage reached by club work
Maine.....	6,645	4,200	63.20	2,173	6,373	5,959	93.66	40	159	9,370	23.19
New Hampshire..	6,222	3,830	61.56	3,265	7,095	5,784	81.52	37	192	3,460	94.36
Vermont.....	5,666	3,425	60.45	1,920	5,345	4,509	84.36	41	130	4,792	40.07
Massachusetts..	19,321	8,815	45.62	12,027	20,842	16,654	79.90	66*	316	8,083	148.79
Connecticut...	5,331	2,860	53.65	3,135	5,995	4,516	75.33	35	171	9,894	31.68
Rhode Island...	2,765	1,858	67.20	1,013	2,871	2,609	90.87	9	319	982	103.16
New York.....	26,618	15,604	58.62	10,836	26,440	18,684	70.66	201	132	38,510	28.14
Pennsylvania...	17,671	8,729	49.40	8,540	17,269	14,074	81.50	136	127	71,466	11.95
New Jersey....	11,922	6,959	58.37	4,694	11,653	9,783	83.95	51	228	13,728	34.19
Delaware.....	2,253	1,042	46.25	935	1,977	1,599	80.88	11	180	2,267	41.24
Maryland.....	9,368	6,691	71.42	3,393	10,084	8,111	80.43	61	165	13,755	24.67
West Virginia..	19,865	9,449	47.57	10,418	19,867	12,759	64.22	104	191	29,639	35.15
Subtotal.....	133,647	73,462	54.97	62,349	135,811	105,051	77.35	792	171	205,946	30.27
Eastern											
Ohio.....	56,451	32,989	58.44	22,972	55,961	44,121	78.84	157*	356	45,199	50.82
Indiana.....	45,895	26,760	58.31	17,779	44,539	36,757	82.53	143*	311	29,638	59.99
Kentucky.....	24,550	16,645	67.80	16,892	33,537	25,973	77.44	196	171	43,024	39.26
Illinois.....	26,385	16,099	61.02	11,770	27,869	23,126	82.98	142	196	41,275	28.52
Michigan.....	31,775	15,424	48.54	20,985	36,409	30,909	84.89	113	322	33,340	62.94
Wisconsin.....	31,213	18,066	57.88	12,486	30,552	22,221	72.73	97	315	30,904	40.40
Minnesota.....	43,167	27,045	62.65	15,375	42,420	34,940	82.37	179	237	29,241	52.58
Iowa.....	24,321	16,713	68.72	9,244	25,957	22,178	85.44	196	132	31,022	29.80
Missouri.....	12,984	5,590	43.05	12,205	17,795	12,187	68.48	191	93	37,275	32.74
North Dakota..	7,945	4,385	55.19	3,742	8,127	6,008	73.93	65	125	13,849	27.02
South Dakota..	10,601	3,875	36.55	7,062	10,937	7,593	69.42	92	119	12,943	54.56
Nebraska.....	15,955	8,148	51.07	10,882	19,030	14,319	75.24	121	157	19,276	56.45
Kansas.....	18,149	11,539	63.58	8,477	20,016	15,432	77.10	152*	132	23,931	35.42
Subtotal.....	349,391	203,278	58.18	169,871	373,149	295,764	79.26	1,844	202	390,917	43.45
Central											

1.--Number of county extension agents on Federal appointment June 30, 1936, except in States marked \*, in which cases the total months of service reported by county extension agents and assistants was divided by 12 to obtain number of agents on a yearly basis.



Table 2.--4-H club and other data by States, 1936 (continued)

State	Enroll- ment 1935	1935 members reen- rolled in 1936	Per- centage reen- rolled	New members 1936	Total en- rollment 1936	Total comple- tions 1936	Per- centage comple- tions 1936	County exten- sion agents <sup>1</sup> 1936	Members per coun- ty exten- sion agent	Rural boys and girls reaching 4-H start- ing age	Per- centage reached by club work
Virginia .....	32,338	21,423	66.25	14,053	35,476	26,417	74.46	221	160	39,825	35.29
North Carolina	29,542	20,799	70.40	20,314	41,113	23,942	58.23	283	145	59,997	33.86
South Carolina	26,611	17,823	66.98	11,876	29,699	18,490	62.26	142	209	36,634	32.42
Georgia .....	54,976	35,722	64.98	27,427	63,149	46,936	74.32	297	213	50,282	54.55
Florida .....	15,287	9,843	64.39	7,860	17,703	10,886	61.49	104	170	15,373	51.13
Alabama .....	44,094	33,471	75.91	32,245	65,716	41,248	62.77	233	282	45,592	70.72
Mississippi ..	49,942	31,852	63.78	27,583	59,435	26,594	44.74	275	216	38,966	70.79
Tennessee ....	38,430	24,935	64.38	29,769	54,704	35,139	64.23	256	214	41,067	72.49
Arkansas .....	41,755	26,457	63.36	22,460	48,917	30,070	61.47	198	247	35,454	63.35
Louisiana ....	22,795	15,000	65.80	12,859	27,859	18,978	68.12	156	178	30,958	41.54
Oklahoma.....	46,110	33,011	71.59	20,080	53,091	34,969	65.87	196	271	38,176	52.60
Texas .....	41,843	25,197	60.22	37,021	62,218	25,995	41.78	498	125	78,837	46.96
Puerto Rico ..	654	70	10.70	1,102	1,172	337	28.75	45	26	-	-
Subtotal .....	444,377	295,603	66.52	264,649	560,252	340,001	60.69	2,904	193	511,161	51.77
Southern											
Montana .....	6,508	3,325	51.09	3,645	6,970	6,033	86.56	57	122	8,186	44.53
Idaho .....	4,840	1,902	39.30	2,689	4,591	3,087	67.24	38	121	7,536	35.68
Wyoming .....	2,841	1,558	54.84	1,565	3,123	2,252	72.11	26	120	3,177	49.26
Colorado .....	6,887	3,843	55.80	4,541	8,384	5,681	67.76	64	131	11,528	39.39
Utah .....	5,459	2,719	49.81	2,486	5,205	4,043	77.68	36	145	6,381	38.96
Nevada .....	926	514	55.51	383	902	722	80.04	19	47	948	40.93
New Mexico ...	2,214	1,023	46.20	3,473	4,496	2,878	64.01	35	128	7,154	48.55
Arizona.....	2,465	1,055	42.80	1,636	2,691	2,045	75.99	23	117	5,968	27.41
California ...	10,285	5,960	57.95	4,869	10,829	8,507	78.56	143	76	26,987	18.04
Oregon.....	17,628	9,453	53.65	8,285	17,743	15,063	84.90	59*	301	9,249	89.58
Washington ...	8,562	4,179	48.81	4,721	8,900	6,175	69.33	67*	133	13,840	34.11
Hawaii .....	1,596	705	44.17	1,419	2,124	1,912	90.02	22	96	-	-
Alaska .....	118	29	24.58	309	338	285	84.32	-	-	-	-
Subtotal.....	70,329	36,270	51.57	40,026	76,296	58,683	76.91	589	130	100,954	39.65
Western											
GRAND TOTAL ..	997,744	608,613	61.00	536,895	1,145,508	799,499	69.79	6,129	187	1,208,978	44.41





Extension Service Circular 270

October 1937

## Statistical Measurements of 4-H Club Work

With Special Reference to 1936

Barnard D. Joy



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